



Austin Energy's District Cooling Program

Austin Energy Utility Oversight Committee
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On-Site Energy Resources





District Cooling



- An underground network of pipes providing chilled water to meet the cooling needs of multiple buildings
- Gathering load generates superior energy savings, reliability and quality
- Thermal storage provides electrical demand management



Benefits

For District Cooling Customers:

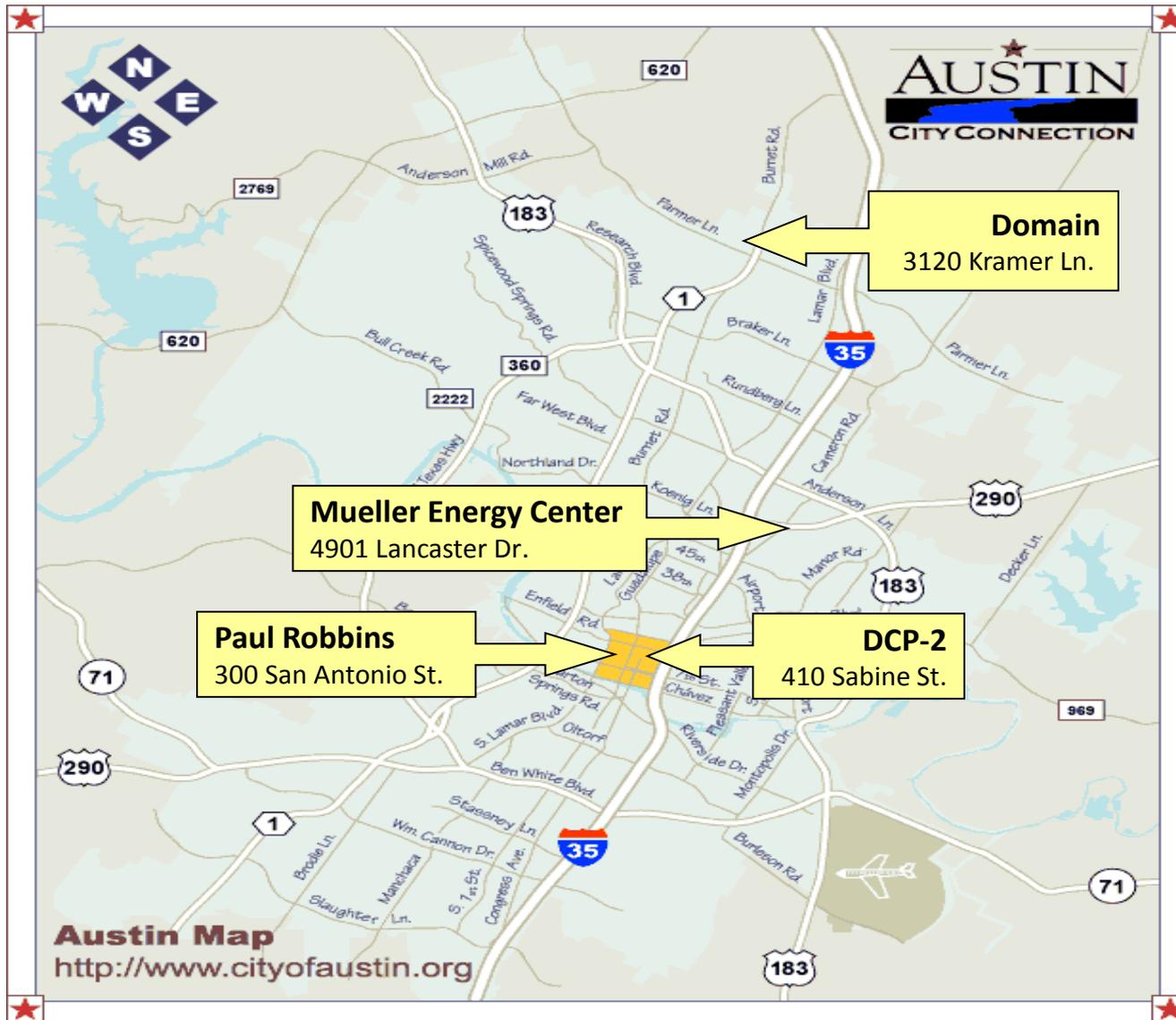
- Reduces capital costs and frees up building space
- Must make financial sense over a stand-alone system
- Extraordinary reliability by design
- User-friendly system means low risk to customers

For the Community and Austin Energy:

- Supports city growth initiatives
- Creates a long-term revenue stream
- Supports the Austin Energy Resource, Generation and Climate Protection Plan to 2025
- Shifting peak electric demand means Electric Reliability Council of Texas (ERCOT) market and regulatory savings or avoided costs

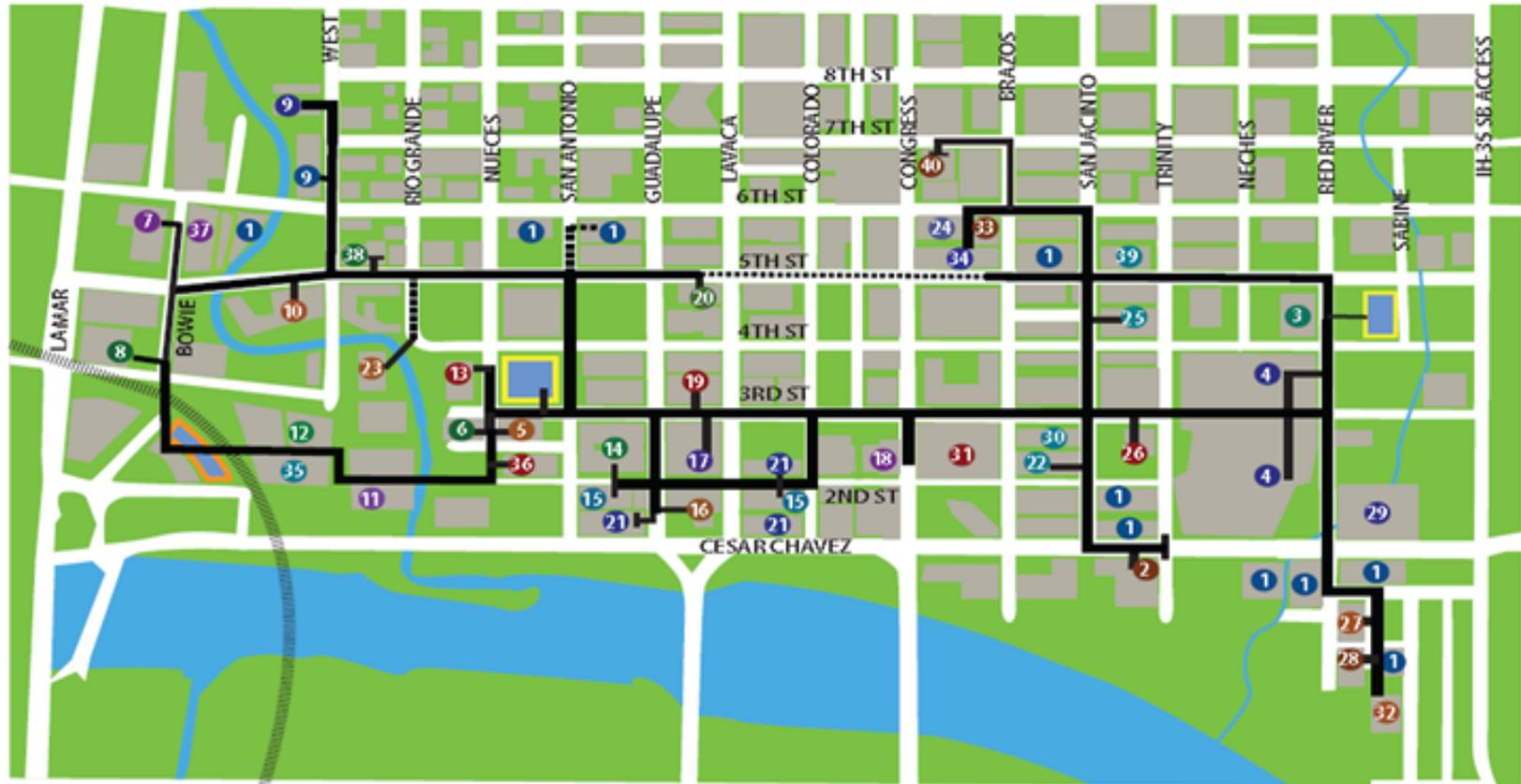


District Cooling Plant Locations





Downtown District Cooling



- | | | | | | |
|---------------------------|----------------|-----------------------------|--------------------|---------------------------|-------------------------|
| 1 Future | 6 208 Nueces | 11 New Central Library | 18 Austonian | 26 Restaurants | 34 501 Congress |
| 2 Four Seasons Residences | 7 Whole Foods | 12 Seaholm Residences | 19 Hobby Building | 27 Van Zandt Hotel | 35 Athena Health |
| 3 Hilton Hotel | 8 Spring | 13 Austin 360 | 20 Plaza Loft | 28 The Shore | 36 500 W. 2nd |
| 4 Convention Center | 9 Cirrus Logic | 14 AMLI Apartments & Retail | 21 AMLI Retail | 29 Fairmont Hotel | 37 Shoal Creek Walk |
| 5 Ballet Austin | 10 Monarch | 15 Silicon Labs | 22 Hampton Hotel | 30 Hyatt Place Hotel | 38 5th & West |
| CHILLER PLANTS | EXISTING PIPE | 16 City Hall | 23 The Independent | 31 JW Marriott Hotel | 39 Westin Hotel |
| FUTURE CHILLER PLANT | FUTURE PIPE | 17 W Hotel & Residences | 24 515 Congress | 32 70 Rainey | 40 A Loft/Element Hotel |
| | | | 25 Marriott Hotel | 33 The Littlefield Retail | |



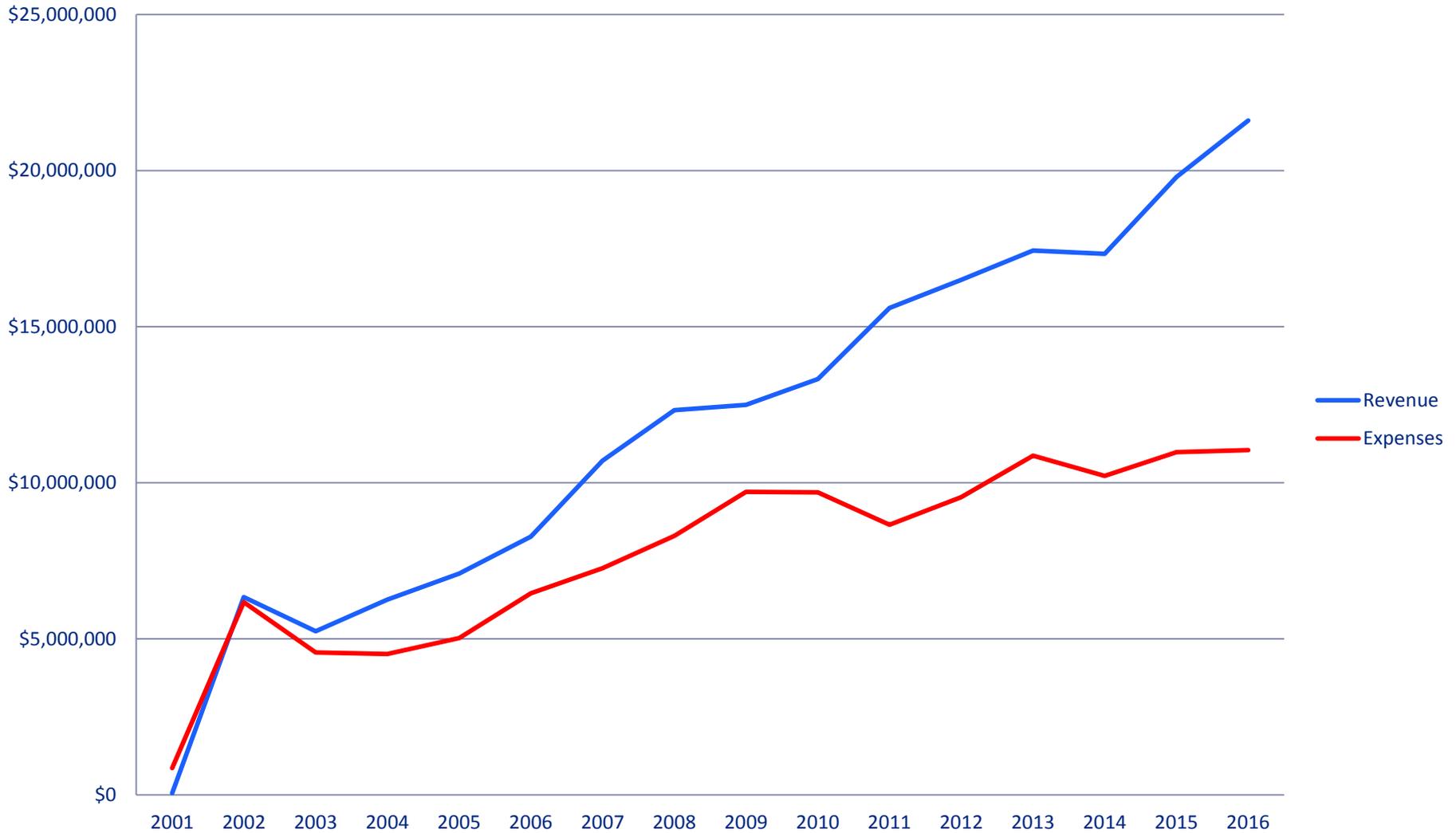
Currently

- District Cooling Program has connected 69 customers
- Over 18.9 million square feet of facilities (i.e. 160 City Halls)
- Summer of 2016 provided 15 MW demand shift
- Adding customers increases shifting toward goal of 20 MW





Revenue and Expenses





Peer Organizations

- Orlando Utilities Commission
- Jacksonville Electric Authority
- Nashville Electric Service
- San Antonio Water System
- Thermal Energy Corporation, Houston
- NRG – Houston, Phoenix, San Francisco, San Diego, Hershey, Pa. and Princeton, NJ





Financial Business Model

Costs

- Large initial capital investment
 - Plant
 - Piping transmission system
- Periodic additional capital investments
 - Distribution piping for customer connections
 - Heat exchangers and metering for customer's facility
 - Capacity increases at the plant / new plants



Revenues

- Long-term recovery of costs through customer charges
 - Demand or Capacity charge – Capital Recovery
 - Consumption or Commodity charge – Operational costs
- Positive return on investments



Chilled Water Rate Structure

Capacity charge – Capital recovery fixed charge (20 yrs.)

- Plant
- Transmission lines
- New customer connection

Consumption charge – O&M variable charges

- Electricity
- Water & Waste Water
- Parts & Labor

New Customer Connection Charge

- Interconnection charge – Recovery in 15 years fixed



Potential Program Expansions

Expansion to existing systems

- Downtown
 - Crescent Property
 - Paul Robbins Plant
- Mueller

New satellite locations in support of Imagine Austin Plan

- Austin Community College – Highland Campus
- Central Health – Brackenridge Campus
- South Central Waterfront District
- Innovation District





ACC Highland Campus Chiller Plant

- 5400-ton chiller and cooling tower installed in phases to match customer's build-out schedule
- Thermal storage tank – up to 4 MW demand shift
- 30-year service agreement and 30-year ground lease
- Potential reuse of existing 400-ton chillers and cooling towers
- \$31 – \$35 Million capital spending
- Capacity charge – fixed capital recovery over 30-year term
- Consumption charge – Operations and Maintenance



Program Recap

Successful program

- 69 customers connected to the District Cooling systems
- Over 18.9 million square feet of facilities
- Sound financial model

Value to our community

- Lever for economic development
- 15 MW demand management toward 2025 goal of 20 MW

Significant growth opportunities

- Expansion opportunities – Downtown and Mueller
- Satellite systems



Thank you.

Questions?

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